

Chapter 5: Planning applications

This chapter contains all of the necessary information for planning a Meridian IVR application.

Notes:

- 1 The procedures described in this chapter cover only the initial planning of an application. For modification procedures, refer to the *Meridian IVR Application Development Guide* (NTP 555-9001-310).
- 2 Not all of these procedures apply to every application.
- 3 The “General procedure for planning an application” on page 5-6 will help you to determine which specific procedures you must perform.

Types of applications

Configuration requirements for Meridian IVR applications vary depending on the needs of the application. There are three categories of Meridian IVR applications:

- incoming call applications (inbound)
- outgoing call applications (outbound)
- administrative applications

The following sections outline the types of applications that can be created and combined within the three basic categories.

Incoming call (inbound) applications

Applications that provide a service to callers who dial in are “inbound” applications. Callers dial from either an internal telephone (an extension on the PBX) or external telephone (a payphone or home telephone) to the service.

Outgoing call (outbound) applications

Applications that call internal or an external telephone numbers are “outbound” applications. The Meridian IVR application requests Meridian Mail to initiate an outgoing call, and provides an IVR service to a customer.

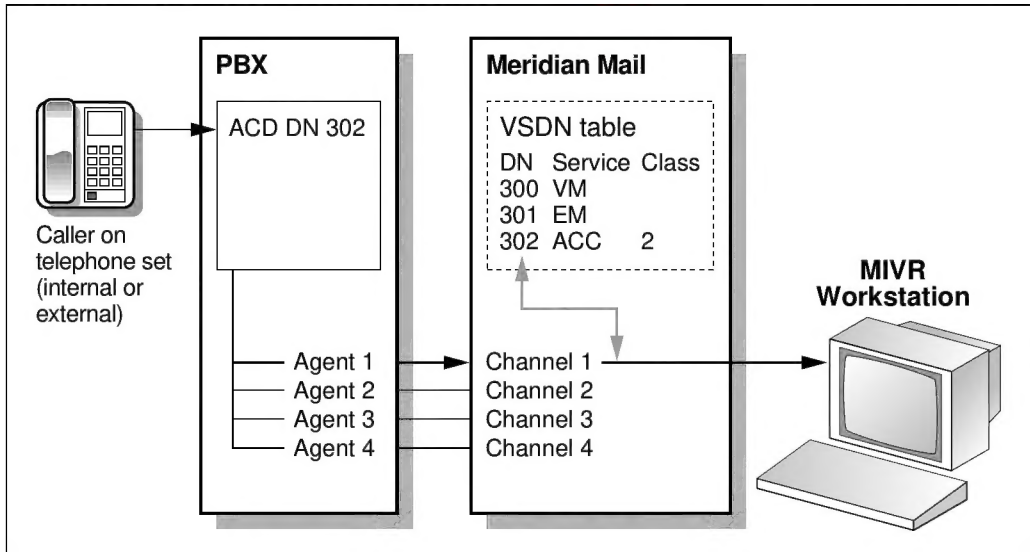
Administrative applications

Applications that do not take incoming calls or place outgoing calls are generally administrative in nature. There is a wide range of possible applications, and a popular example is electronic mail notification. Meridian ACCESS can be used to send summaries of voice messages to a host computer, and can receive notification of text messages (and turn on Message Waiting Indication at a telephone set).

Concepts and planning

To plan and configure a Meridian IVR system, you must understand some basic concepts. **Figure 5-1** shows an overview of the concepts which are introduced in this section.

Figure 5-1
Meridian IVR-based application overview



Private branch exchange

The private branch exchange (PBX) provides the telephone interface to Meridian IVR voice services. For Meridian 1 systems, the Automatic Call Distribution (ACD) feature allows a number of “telephones” connected to the PBX (known as agent positions) to share equally in answering incoming calls. Incoming calls to an ACD Directory Number (DN) are placed in an ACD queue and presented to the available agents on a “first-in, first-out” basis. Other switches use similar queuing schemes.

In Meridian 1 systems, Meridian Mail uses ACD to receive calls from users who have dialed a voice service telephone number (which is an ACD DN). Calls are distributed to agent positions which correspond to voice channels on Meridian Mail. Inbound applications handle calls that originate outside the PBX. A call arrives on a trunk that terminates on an ACD queue.

Meridian Mail is usually configured so that all incoming calls share all available agents/channels, so that calls are evenly distributed. Shared channel configuration involves one “primary” ACD DN that can direct calls to all configured agents. All other voice services use ACD DN's that do not have agents assigned to them. All incoming calls to those DN's are forwarded to the primary ACD DN (and utilize the agents assigned to that primary DN).

In some cases, however, you may decide to use a dedicated channel configuration in order to have more control over incoming calls. In this case, voice service DN's may have their own agents assigned to them. These agents are dedicated to their own voice service DN's (and any other DN's that are forwarded to a specific voice service DN).

Shared versus dedicated channels

The decision to use a shared or dedicated channel configuration depends on the specific requirements of the application. Often, the application developer will specify which configuration to use. The shared channel method uses channels more efficiently in terms of traffic; however, it generates more Meridian ACCESS link traffic and Meridian Mail system load. The dedicated channel method reduces some application overhead, and is the best method for systems using a single application and no other voice services. Dedicated channels also have a faster prompt response time (time measured from the moment the pound key is pressed until the first prompt is heard).

Note: A combination of shared and dedicated channels may be required to achieve your organizations particular call-handling objectives.

Meridian Mail

Meridian Mail provides all basic voice service capability to the Meridian ACCESS system. It stores all voice recordings and gives callers access to features like voice messaging (which in itself has a long list of available features), voice menus, and announcements. These features can be customized to meet the needs of a wide range of users.

Call processing

Incoming calls to a voice service (such as a Meridian ACCESS-based application) arrive on Meridian Mail channels according to ACD configuration, described under “[Private branch exchange](#)” on page 5-3.

Although a call may have been forwarded to another ACD DN and then reassigned to an agent position, it still retains information about the originally dialed DN. Meridian Mail interprets this DN according to the Voice Service DN (VSDN) table. The VSDN table lists all voice service DNs and type of service information on each DN.

VSDN table

Every voice service has a DN associated with it. When this DN is dialed, the call is passed to Meridian Mail. Meridian Mail starts up the appropriate voice service by looking at the VSDN table entry for that DN.

The VSDN table entry for a Meridian ACCESS-based application contains three pieces of information: the DN, service type (ACCESS), and class. A service type of “ACC” indicates to Meridian Mail that the call should be passed to Meridian ACCESS. Every Meridian ACCESS-based application has a unique class number, the class indicates which application should be run. If the originally dialed DN corresponds to a Meridian IVR-based application, it will start the application for that class number.

Channel Allocation Table

The Channel Allocation Table (CAT) contains entries for each voice channel on Meridian Mail and matches these channels to ACD agents on the PBX. This table enables you to dedicate channels to a particular service on Meridian Mail, or make the channels available to all services.

When channels are dedicated to a service in the CAT, Meridian Mail cannot allocate those channels to any other service. If those particular channels are not dedicated on the PBX (using a separate ACD queue, as described earlier), any service can use the channels on incoming calls; the CAT only controls the resources allocated by Meridian Mail.

Meridian Mail channels

There are three types of channels in Meridian Mail: Multimedia channels, Full Voice channels, and Basic Voice channels. If there is a mix of channels on Meridian Mail, Meridian IVR will only be able to use basic voice channels that are configured as either “ALL” or “ACC” in the CAT.

- A Basic service will only be able to use a Full Voice channel if there are no Basic Voice channels in service.
- A Multimedia channel can only be used if there are no Full and Basic voice channels in service.

Outbound discussion

Outbound voice services must acquire a voice channel before initiating a call. The voice channel allocated is determined by the CAT settings. The voice service may request a dedicated channel, or may use a channel available to all services.

Notes:

- 1** No dialing restrictions are applied to the outcalling ACCESS voice service. Any dialing restrictions used must be enforced on the Meridian 1.
- 2** Incoming calls to the outbound voice service by default are blocked by the PBX.

Mailboxes

Most Meridian IVR-based applications require a Meridian Mail account, or mailbox, to store voice files. A single mailbox can be shared by a number of applications, and must be shared if the applications use the same voice files. It may be useful to have different applications use different mailboxes.

Mailboxes can be customized in a number of ways to suit a Meridian IVR-based application. Space requirements for voice files must be taken into account, message waiting indication can be enabled or disabled (if there is no telephone number associated with the mailbox), and message retention information can be modified. (“Sent” messages can be retained or deleted automatically. Also, “read” messages can be retained for a designated period of time.)

General procedure for planning an application

Every Meridian IVR-based application serves a unique function and the configuration requirements can vary widely. Planning for an application is a very important step in the configuration process, and this chapter provides the information required to help you set up your Meridian IVR-based application.

The following points outline all of the major steps involved in planning an application for Meridian IVR. If a step does not apply to your situation, simply proceed to the next step.

Procedure 5-1 Configuring an application

- 1 Draw a flowchart of your application that includes all of the necessary information for your configuration purposes.

Specify the following information in your flowchart:

- every dialed DN (ACD DN)
- whether each ACD DN has channels assigned to it or is forwarded to another ACD DN (which has channels assigned)
- appropriate revert DN for each dialed DN

See [“Draw a flowchart” on page 5-10](#).

- 2 For each ACD DN, add an ACD queue on the PBX.
- 3 For applications that require dedicated incoming channels, add or reassign the agents to the new ACD queue.
- 4 Update the Channel Allocation Table if you are using the dedicated channel method for incoming or outgoing calls.
- 5 Update the VSDN table to reflect all new DN's and their respective services, class numbers and revert DN's.
- 6 Add voice mailboxes as necessary.

For detailed directions on configuring an application for Meridian IVR refer to the *Meridian IVR Installation Guide* (NTP 555-9001-210).

More on preconfiguration requirements

[“Preconfiguration requirements” on page 1-3](#) of this document describes the preconfiguration requirements which should be met before configuration takes place. Some of these requirements depend on the nature of the applications that will be used on the Meridian IVR system and are further explained here.

Storage (disk space)

Meridian Mail stores all voice prompts, messages, greetings, and any other recorded voice for Meridian IVR-based applications and other voice services. If you are using other Meridian Mail features, the storage requirements for those must also be taken into account.

When using dedicated channels, the voice prompts should be stored on the node where the channels are dedicated. This will assist in balancing the load on the disks. If a multi-node system is being used, it is possible to place a copy of the prompts on each node. However, this may not be appropriate for applications which regularly update their voice prompts.

The application developer should provide you with information on the storage requirements for each application. For details on determining system size, refer to *Meridian Mail Site and Installation Planning* (NTP 555-70x1-200).

Voice channels

To determine the appropriate number of channels for the system, estimate the traffic requirements for each application. If you are using other Meridian Mail features, the traffic requirements for those must also be taken into account. For more information on determining system size, refer to *Meridian Mail Site and Installation Planning* (NTP 555-70x1-200).

Procedure 5-2 **Estimating traffic requirements**

The following steps outline how to estimate the traffic requirements for Meridian IVR-based applications:

- 1 Estimate the average length of a call to or from the application.
This should include post call processing time, which is the time from disconnection of one call until the application is ready to accept the next call. This information should be provided by the developer.
- 2 Estimate the number of calls for the busiest hour.
- 3 Multiply the average length by the number of busy-hour calls, this value is called the "total activity" for one application.
- 4 Repeat steps 1 to 3 for each application.
- 5 Add the total activity of *each* application to find the total activity for *all* applications.
- 6 Divide this number by 100 to determine the ccs count (ccs refers to hundreds of call seconds).

Look up the ccs value in the Erlang tables found in [Appendix G: Erlang tables](#), in this guide, to determine the optimum number of voice ports for Meridian IVR-based applications. For a definition of ccs refer to ["Centi-call seconds" on page 3-4](#) of this guide.

Table 5-1
Determining channel capacity Meridian IVR

Capacity of system, expressed in CCS	Optimum number of channels
0 to 54	4
55 to 157	8
158 to 273	12
274 to 522	20
523 to 651	24
652 to 782	28
783 to 915	32
916 to 1049	36
1050 to 1183	40
1184 to 1318	44
1319 to 1455	48
1456 to 1591	52
1592 to 1729	56
1730 to 1866	60
1867 to 2004	64

Application planning

Before you start

The application developer should provide you with the following for each application:

- class number
- mailbox requirements
- channel allocation requirements (does the application call for shared or dedicated channels?)
- number of ACD DN's required

Determine your needs

Once you have a good understanding of how the application works, you should determine the following:

- 1 Does the application receive incoming calls?

If yes

- a Will the calls share channels with other applications or voice services, or do they require dedicated channels?
- b If channels are to be dedicated to the application, how many channels/ACD agents are required?
- c Is the application a “multi-function” one?

Multi function applications answer calls made to different numbers in different ways and require separate ACD DN's. Separate revert DN's may also be required.

- 2 Does the application place outgoing calls?

If yes

- a Will the calls share channels with other applications or voice services, or do they require dedicated channels?
- b Will calls be placed to internal extensions, external numbers or both?

- 3 Does your Meridian Mail system have to be expanded to accommodate increased traffic or storage requirements?

Draw a flowchart

Draw a flowchart, or “map,” of your application. This will help you put all of the components in place. Illustrate the complete path of a call (incoming, outgoing, or both, depending on the application) and leave room at every step for information. Each dialed DN should have PBX information (for example, DN and ACD queue information) and Meridian Mail information (for example, service type, ACCESS application class number, and revert DN) associated with it.

Figure 5-2 illustrates a sample flowchart. If Voice Messaging and other services are already set up, you do not need to describe all of them in detail; include only the information that is relevant to your applications.

Figure 5-2
Sample application flowchart

